

Applying the Clinoform Concept to Correlation of Deltaic and Shallow Marine Deposits

Bhattacharya, Janok P., University of Houston, Houston, TX

A fundamental problem in subsurface reservoir characterization is determining the continuity of flow units and flow barriers (i.e. sandstones, shales and cements). In any given field, there will typically exist a combination of field wide-elements, elements that may extend between wells, but not across the entire field, and elements that do not extend between wells.

The subsurface geologist must use facies models and sequence stratigraphic concepts to correlate well data. I show several examples of deltaic reservoirs originally depicted as consisting of horizontal layers (i.e. the layer-cake). Outcrop examples suggest that sandstones within the delta front dip seaward. This fundamentally challenges reservoir models that invoke flat versus dipping beds and I demonstrate how this can be applied to correlation of core and well log data sets. Regional-scale stratigraphic results study also suggest very different exploration models in the search for basin-distal reservoir sandstones.

A key problem remains the correlation of deltaic sandstones along depositional strike, for which we have far less outcrop data and do not yet understand the main controlling parameters.